

OTC Stakeholder Meeting

April 10th, 2013
Washington, DC

Mobile Source Committee Update



Overview

National Actions

- Tier 3 Vehicles and Fuel
- Ocean Going Vessels – Emission Control Area

Committee Work

- Aftermarket Catalyst Model Rule
- Heavy Duty Diesel I/M
- Inventory Analysis

USEPA Tier 3 Vehicles

EPA finalized both vehicle emission standards and sulfur in fuel standards.

- Phase-in begins with MY2017
- Applies to all light and medium duty vehicles and some heavy duty vehicles
- For example for light duty passenger vehicles:
 - Tailpipe emission standards provide:
 - NMOG+NO_x – 80% reduction from today's vehicles
 - PM – 70% reduction from today's vehicles
 - Evaporative emission standards ~ 50% reduction

USEPA Tier 3 Fuels

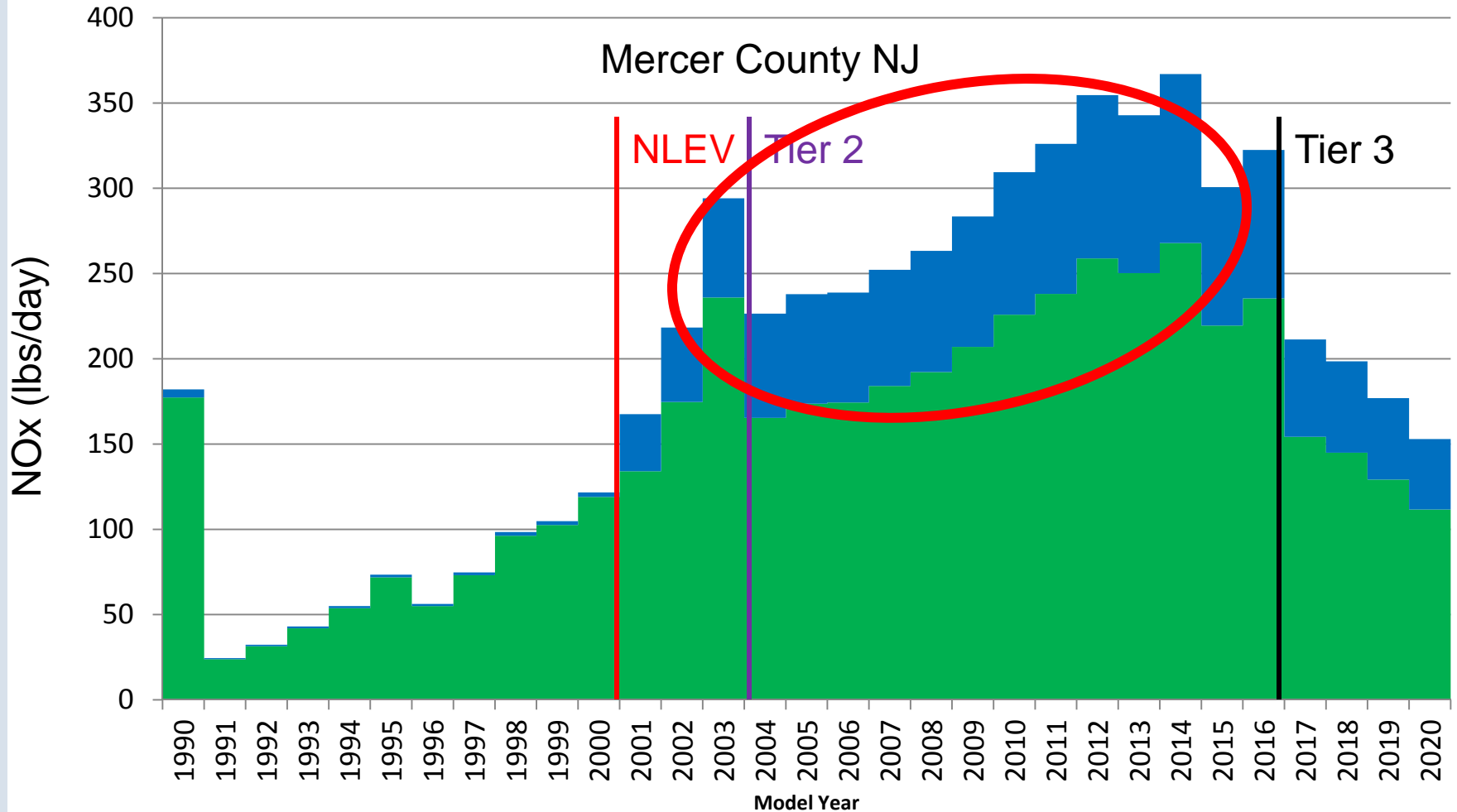
USEPA adopted an average concentration of 10 ppm for Sulfur in gasoline in 2017



USEPA opted to keep the existing Sulfur Cap

- 80 ppm for a Refinery Cap
- 95 ppm for a Downstream Cap

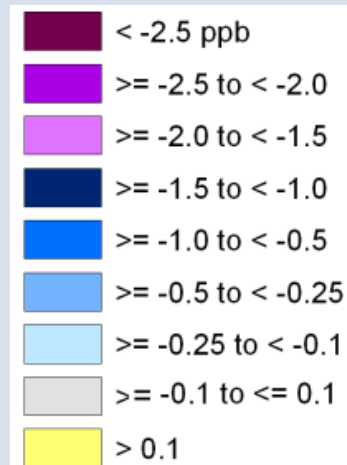
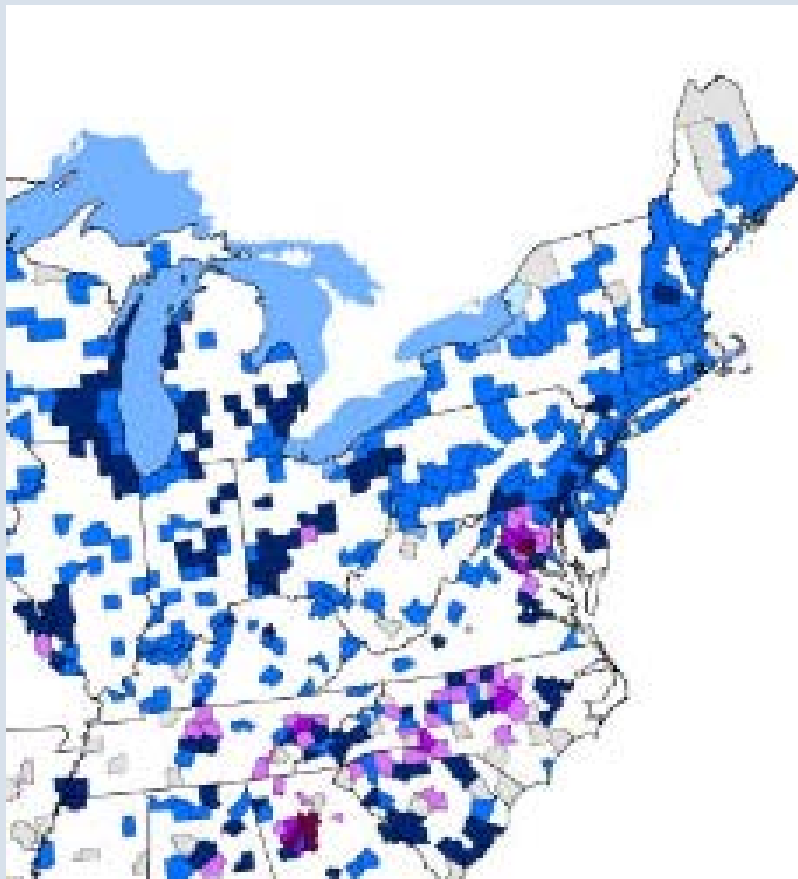
USEPA Set the Test Fuel as E10

Typical County Light Duty NOx Emissions



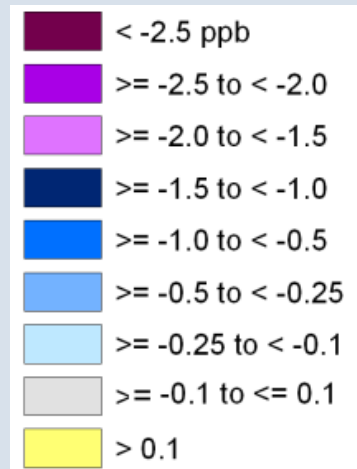
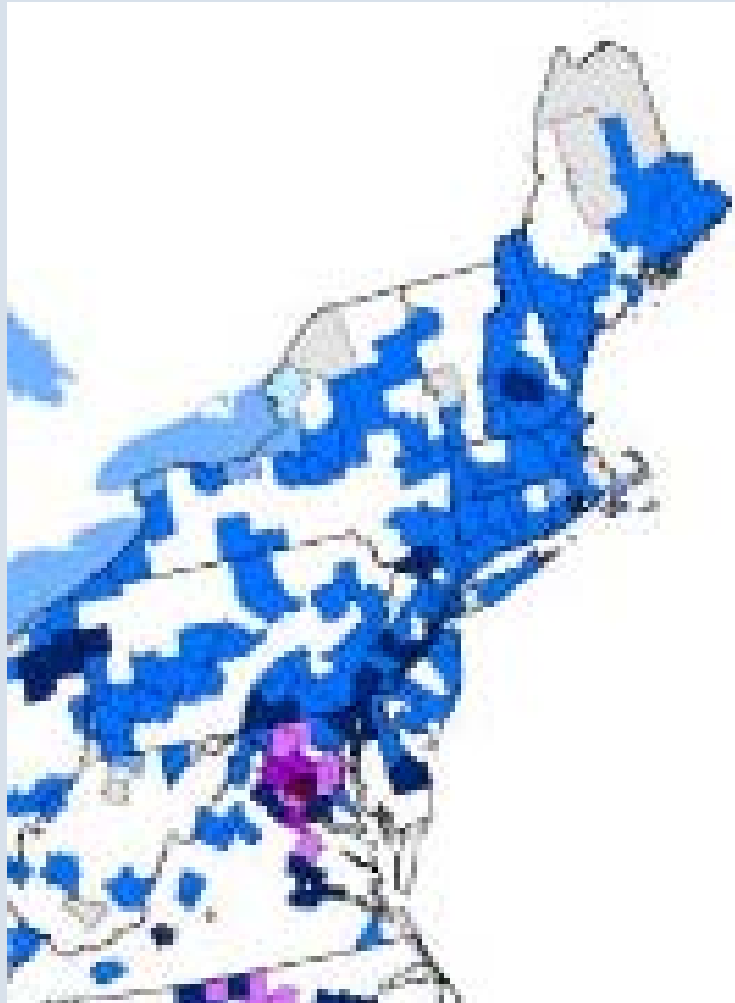
-  Emissions w/o Low Sulfur Gas
-  Emissions w/ Low Sulfur Gas

Ozone Benefits in 2030



Difference in 8-hr Ozone DV -- 2030ct_ctf minus 2030ct_ref

Ozone Benefits in 2030



Difference in 8-hr Ozone DV -- 2030ct_ctf minus 2030ct_ref

Expected Tier 3 Benefits

By 2030, the Tier 3 standards will annually prevent:

- Between 770 and 2,000 premature deaths
- 2,200 hospital admissions and asthma-related emergency room visits
- 19,000 asthma exacerbations
- 30,000 upper and lower respiratory symptoms in children
- 1.4 million lost school days, work days and minor-restricted activities

Emission Control Areas (ECA)

USEPA & International Maritime Organization (IMO) Action

NO_x and SO₂ requirements proposed on ship near shore

- 2015: 1000 ppm Maximum Sulfur Fuel
- **2016: New Engine Standards – Tier 3 (80% reduction)**
- 2010: Existing Engines – 15-20% NO_x reductions

Provides Significant Air Quality Benefits in the OTR and throughout the Nation

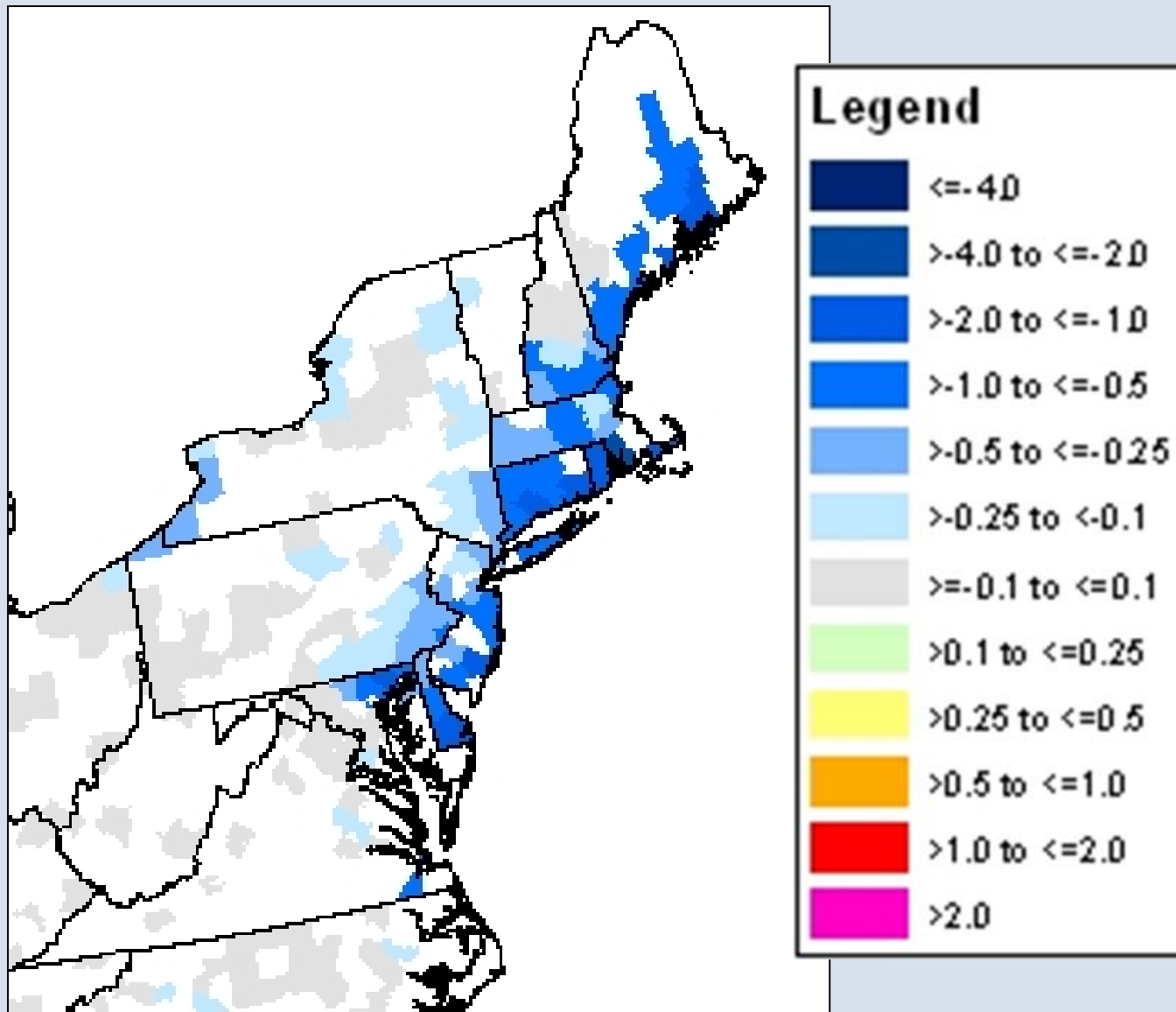
Issues with ECA

An IMO member state recommended a five (5) year delay due to concerns with market availability of control technology

March 2014 IMO finalized that:

- North American ECA would be implemented as scheduled
- Implementation for “Super Yachts” will be delayed until 2021

Emission Control Area – Ozone Benefits in 2020



Status of OTC Federal Measure Asks

OTC Request	Action	Status
Mar 2009	Ships - Emission Control Area	✓
June 2009	Catalyst Replacements (April 2011 – OTC Program Design Recommendation)	✗
Nov 2009	Onroad Mobile Gasoline and Diesel Sources (November 2010 Statement on Tier 3)	✓
	Locomotive Engines	1/2
	Marine Engines	1/2

Status of Federal Measure Commitments

Date	Action	Status
Dec 2010	RFS2 Anti-Backsliding	?
2011	E15 Partial Waiver Decision MY 2001-2006 Motor Vehicles	✓
2012	Heavy Duty Truck Greenhouse Gas Standards	✓
2014	Clean Vehicles 75 ppb Ozone NAAQS Regulatory Impact Analysis	✓

Aftermarket Catalyst Recommendation

USEPA's policy was set in 1986 and has not been updated to reflect improvements in technologies & emission standards

OTC submitted a recommendation for an updated catalyst program to USEPA in April, 2011



Aftermarket Catalyst Model Rule

- Based on regulation being implemented by NY
- Requires sale of aftermarket converters with CARB Executive Orders
- Has optional language for allowing used converters to be installed on vehicles with OBD
- There is also a model guidance document to assist implementation
- Accepting comments until April 30, 2014
- Emission Benefits in OTR:

	NO _x	NMHC	CO
Annual (tpy)	10,000	2,000	27,000
Daily (tpd)	30	6	74

Heavy-Duty I/M Program Assessment

Surveyed 17 States

Conducted through NESCAUM Heavy Duty Work Group

Gathered Information on Current Programs

Assessed Interest in...

- Continuing/Revising Smoke Opacity Test
- Incorporating OBD approach for newer vehicles
- Anti-tampering inspections (DOC, DPF, SCR)
- Other approaches to achieving same benefit



Current HD I/M Programs

Common Themes/Responses From States

- Many Do Not Test HD Vehicles >14,000 GVW
- Most Still Rely on Smoke Opacity Test
- Most Don't Include Anti-tampering Inspection
- Current Cutpoints Still Valid for Identifying Maintenance Problems, but...
- Current Cutpoints Not Stringent Enough Pass/Fail Indicator for MY 2007 & Newer

Future HD I/M Programs

Common Themes/Responses From States

Lack of EPA SIP Credit Viewed as:

- Not recognizing the value of existing HD I/M Programs
- Impediment to developing Future OBD-Based Programs for Newer HD Vehicles
- Impediment to establishing Additional State Programs

Training/Standardization is Critical to Future Successful OBD-Based Programs



Onroad Inventory Project

Mobile emissions as a whole play an important role in formation of ozone pollution in the OTR

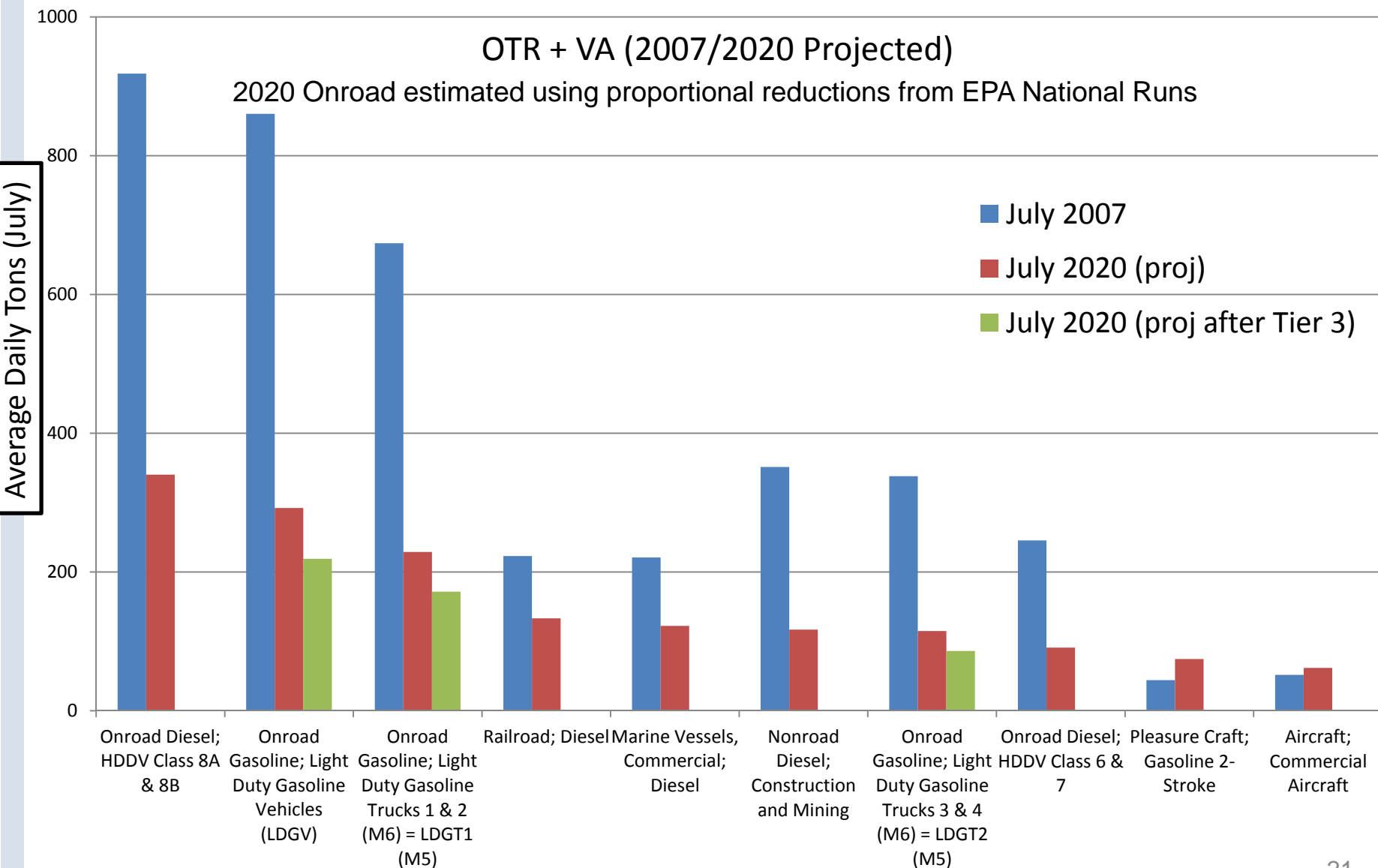
Analyzed 2020 emissions for a mix of suburban and urban counties on the I-95 corridor

- Baltimore City, MD
- New Castle, DE
- Mercer, NJ
- Fairfield, CT
- Rockingham, NH

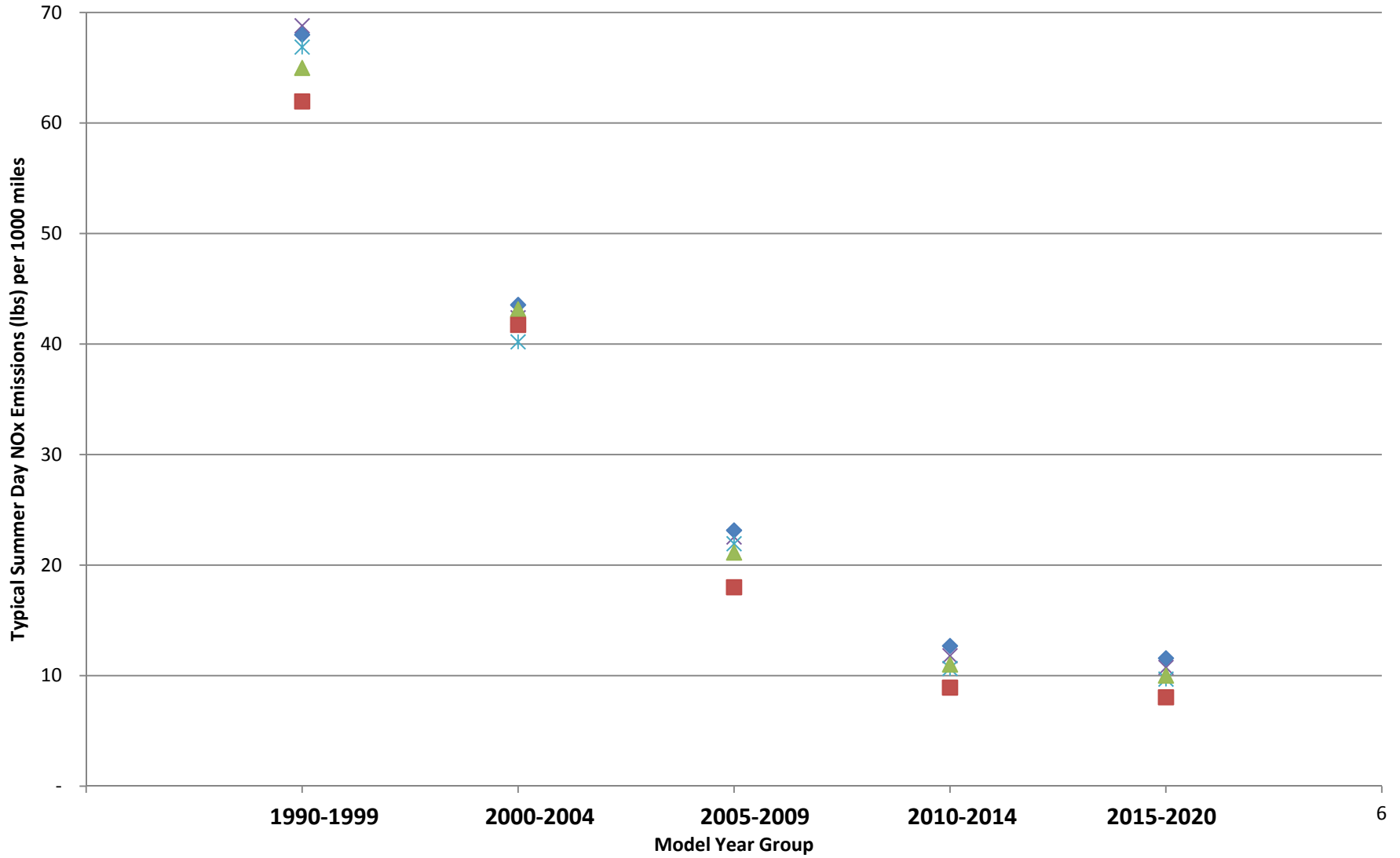
Focused on emissions from:

- Starts/Running/Idling
- Vehicle Miles of Travel (VMT)
- Age of the Vehicle (control technology) – Model Year

NOx: Top Sub-categories in 2020

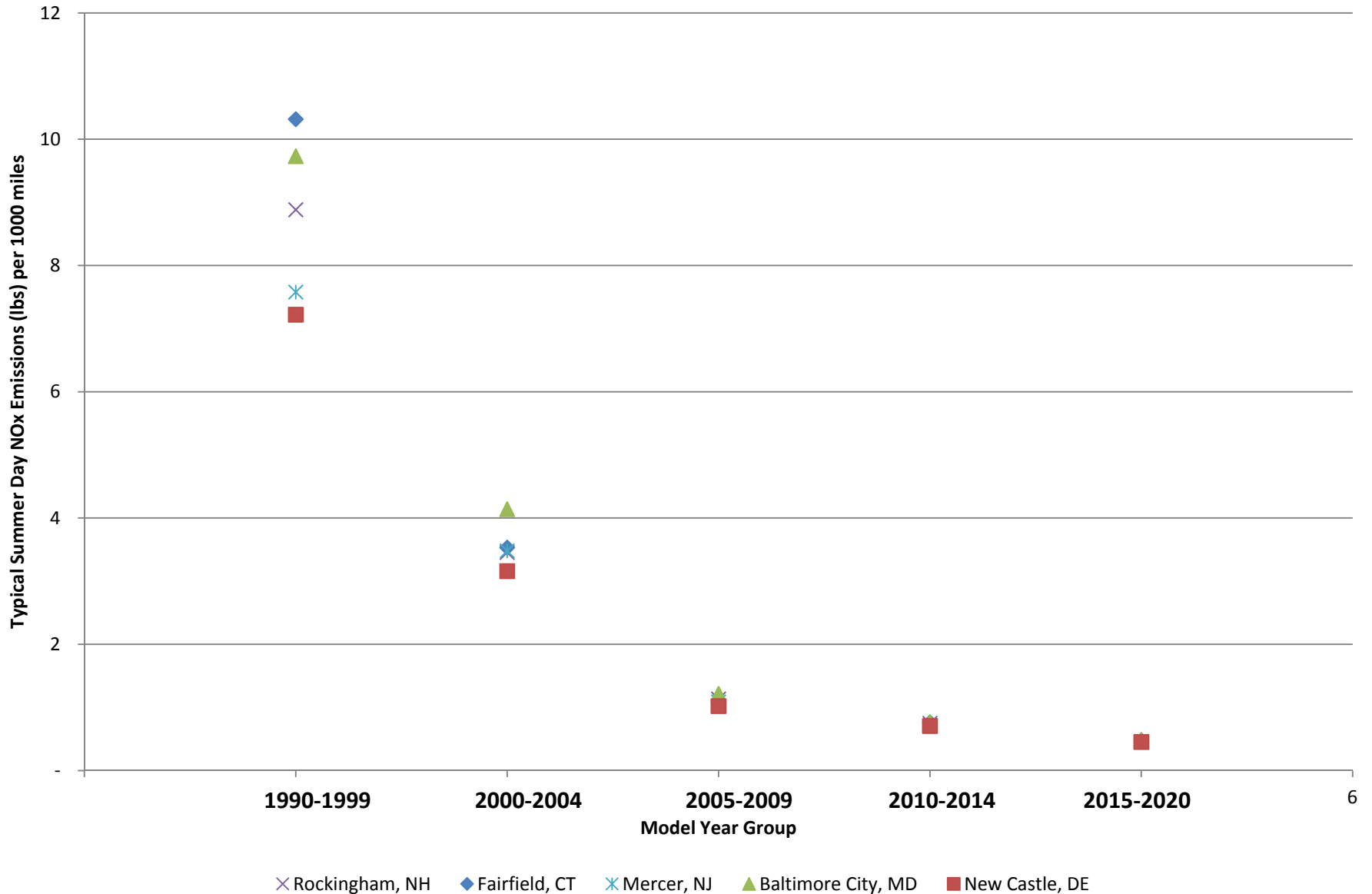


Older Combo Long Haul Trucks Emit More Per Mile than Newer Ones



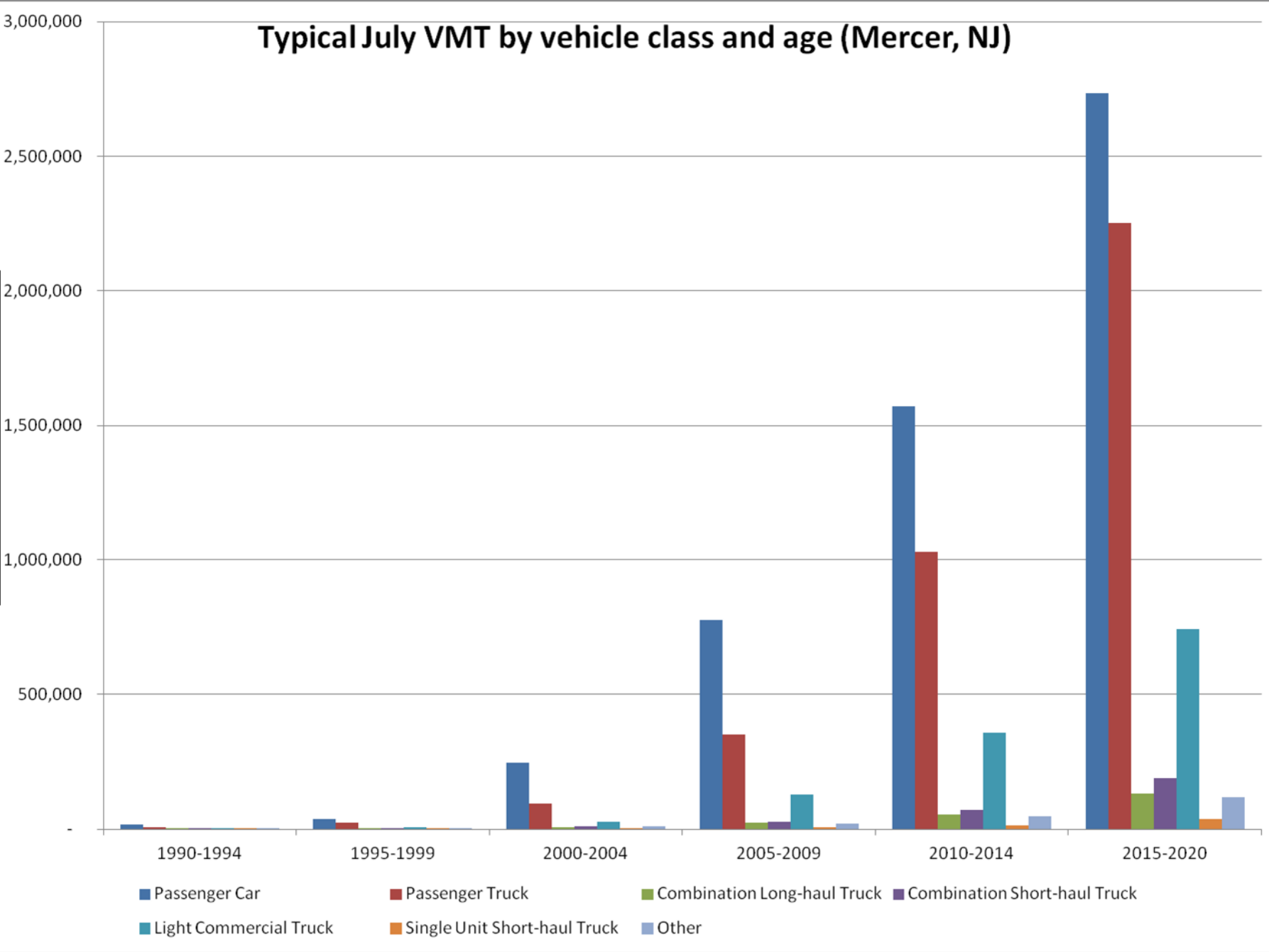
× Rockingham, NH ◆ Fairfield, CT * Mercer, NJ ▲ Baltimore City, MD ■ New Castle, DE

The Oldest Passenger Trucks Emit More Per Mile than Newer Ones



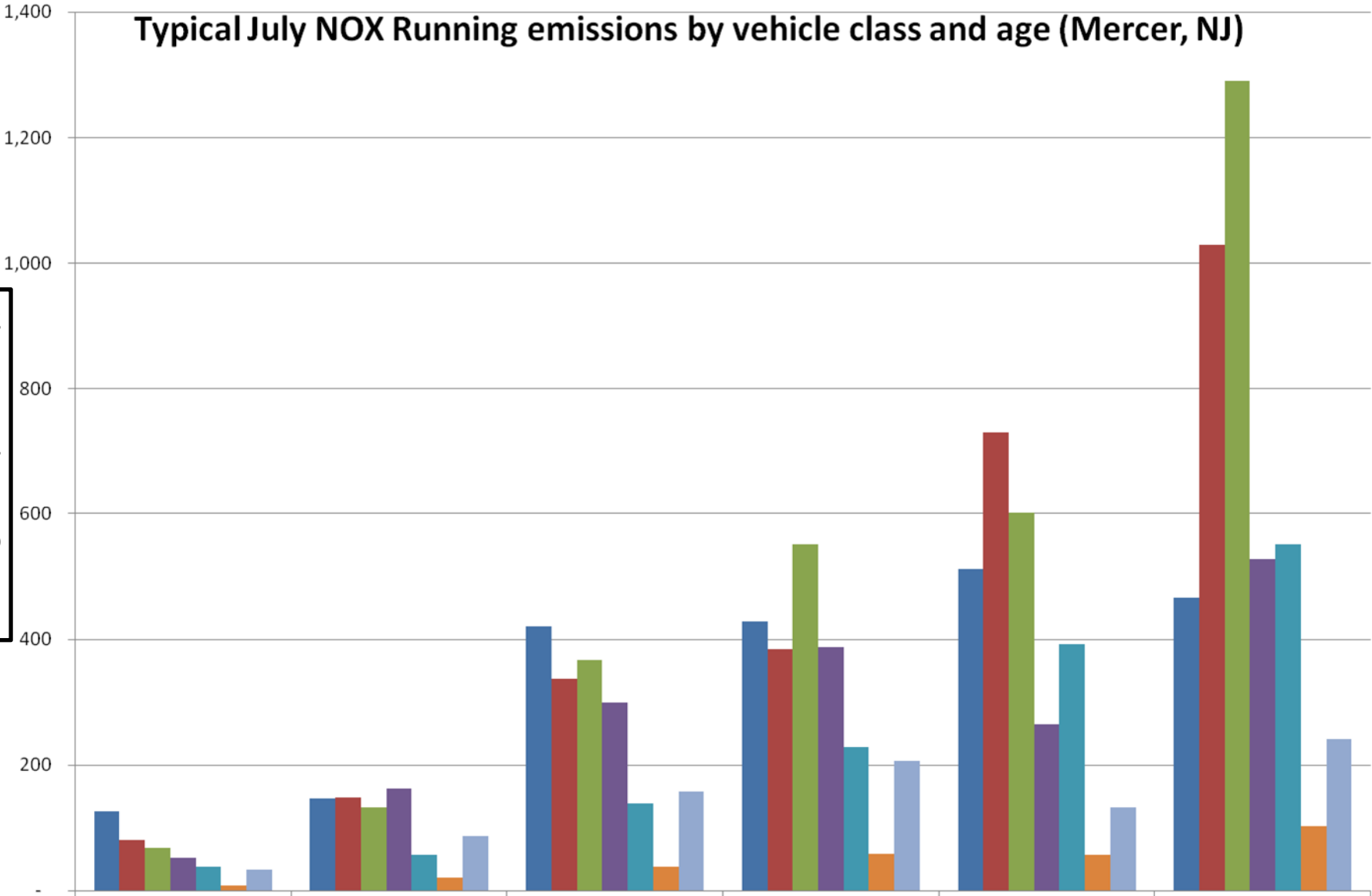
Typical July VMT by vehicle class and age (Mercer, NJ)

Average Daily VMT (July)



Typical July NOX Running emissions by vehicle class and age (Mercer, NJ)

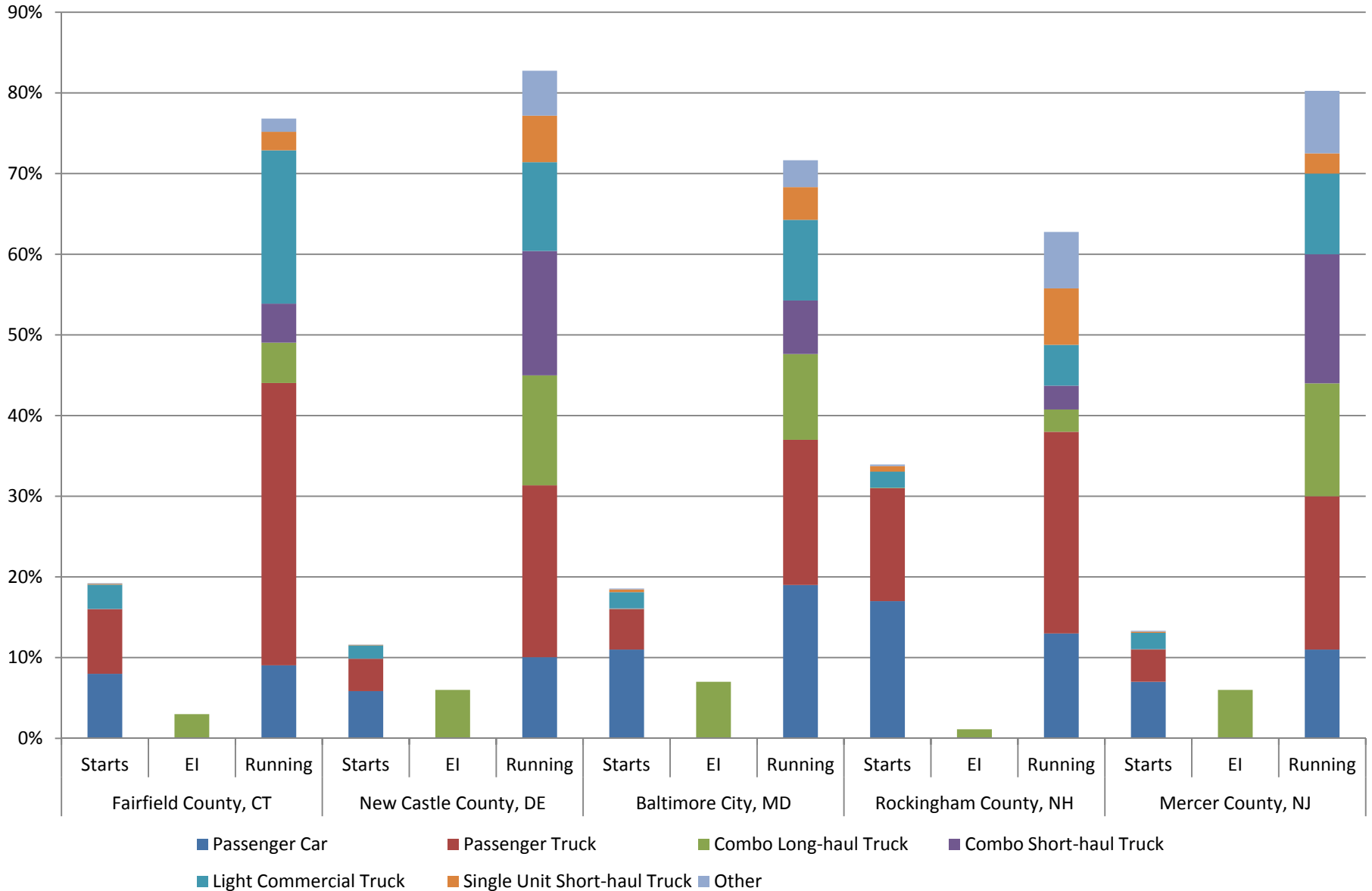
Average Daily Lbs (July)



- Passenger Car
- Passenger Truck
- Combination Long-haul Truck
- Combination Short-haul Truck
- Light Commercial Truck
- Single Unit Short-haul Truck
- Other

Importance of Vehicle Processes

Percentage of NOX Emissions at 8AM on a typical July Day



Summary

Need to focus on onroad mobile sources

- Recommended focus is towards strategies that reduce running emissions from:
 - Newer Long-Haul Truck Emissions
 - Emit the most in aggregate despite having substantially lower emission rates
 - Newer Passenger Truck/SUV Emissions
 - Emit the most in aggregate despite having substantially lower emission rates
 - Passenger Car Emissions (to a lesser extent)

Also evidence to support actions towards nonroad sources

- Marine, Rail, Construction, Pleasure Craft

Summary of the Next Steps

Aftermarket Catalytic Converters

- Finalize Documents after Comment Period ends on April 30

Heavy Duty Diesel I/M

- Work Group Awaiting Information from USEPA OTAQ

Other Efforts

- Examine VMT Projections
- Categories with Growing Emissions
- Continue to Understand the Inventory and Contribution Efforts